ANEWBiosystems®

Product Datasheet

Rev. 25/1/2026

Recombinant Human Interleukin-3 (IL-3), Animal Component-Free

Cat. No. :	H006E
Alternative Names:	IL3; IL-3; Interleukin-3; Interleukin 3; Hematopoietic growth factor; Mast cell growth factor; MCGF; Multipotential colony-stimulating factor; P-cell-stimulating factor
Species:	Human
Accession No.:	P08700
Expression System:	E. coli
Protein Sequence:	Ala20-Phe152
Theoretical MW:	15.09 kDa
Theoretical pI:	7.05
Tag:	Tag-Free.
Formulation buffer:	10mM PB, 5% Trehalose and 0.01% Tween 80, pH7.4.
Appearance:	Lyophilized Powder.
Purity:	≥95% as determined by SDS-PAGE.
Bioactivity:	ED_{50} ≤ 0.1 ng/mL, as determined in a TF-1 human erythroleukemia cell proliferation assay.
Endotoxin Level:	≤0.01 EU/μg, as determined by the LAL assay.
Application:	Cell Culture; Activity Assays.

Preparation & Storage

Reconstitution: Reconstitute with sterile double-distilled water (ddH_2O).

⚠ Centrifuge the vial briefly before opening to ensure full recovery of the solution. Avoid vortexing and minimize vigorous pipetting to maintain protein stability.

❄ Immediately aliquot the reconstituted protein solution and store under recommended conditions. Avoid repeated freeze-thaw cycles.

Shipping: Shipped on dry ice. Short-term transit on cold packs (2-8℃) is acceptable.

Storage: **Use a manual defrost freezer and avoid repeated freeze-thaw cycles.**

- 12 months from date of receipt, -20 to -80℃ as supplied.
- 2-7 days at 2 to 8℃ under sterile conditions after reconstitution.
- 3-6 months at -20 to -80℃ under sterile conditions after reconstitution.

Protein Description

Background: Interleukin-3 (IL-3), also known as multi-CSF (multilineage colony-stimulating factor), is a hematopoietic cytokine primarily secreted by activated $CD4^+$ T cells (especially Th2 subsets), mast cells, and NKT cells. It supports the survival, proliferation, and differentiation of multipotent hematopoietic stem and progenitor cells into myeloid lineages—including granulocytes, monocytes, erythrocytes, megakaryocytes, eosinophils, basophils, and mast cells.

IL-3 signals through a heterodimeric receptor composed of a specific α-subunit (CD123) and a shared β-subunit (CD131, common with IL-5 and GM-CSF receptors). Downstream signaling involves JAK2/STAT5, PI3K/Akt, and Ras/MAPK pathways, promoting cell growth and anti-apoptotic responses.

Beyond its role in steady-state and emergency hematopoiesis, IL-3 contributes to allergic inflammation (e.g., asthma) by enhancing basophil and mast cell activation. Aberrant IL-3 signaling—often via CD123 overexpression—is implicated in acute myeloid leukemia (AML), chronic myeloid leukemia (CML), and blastic plasmacytoid dendritic cell neoplasm (BPDCN), making CD123 a key therapeutic target.

Recombinant IL-3 is used in research for ex vivo expansion of hematopoietic progenitors, while clinical efforts focus on CD123-directed therapies (e.g., tagraxofusp, anti-CD123 CAR-T).

References:

1. Miyajima, A., et al. (1992). Interleukin-3 and its receptor. Immunology Today, 13(6), 204-208.
2. Sanderson, S., et al. (2021). IL-3: A cytokine at the interface of hematopoiesis and immunity. Frontiers in Immunology, 12, 705782.
3. Testa, U., et al. (2019). CD123: A novel therapeutic target in acute myeloid leukemia. Cells, 8(10), 1230.
4. Hermans, M. H., et al. (2003). Signaling by IL-3, IL-5, and GM-CSF: Common and unique elements. Journal of Leukocyte Biology, 73(6), 673-681.
5. Tagraxofusp (SL-401) FDA Approval Summary (2018). U.S. Food and Drug Administration.

Product Disclaimer

- This product is intended for research use only and is not for use in diagnostic, therapeutic, or clinical procedures.
- Due to the inherent nature of research reagents, any liability arising from product quality issues is limited solely to the replacement or refund of the product itself and excludes all indirect, incidental, or consequential damages.

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